

sary precision most economically. The short account of geodetic work will be useful to many, and the reference to the determination of longitude by the aid of wireless telegraphy directs attention to a means of transmission of time signals which has already proved valuable and effective in exploratory surveys.

H. G. L.

A PRACTICAL VISIONARY.

The Works of John Caius, M.D., Second Founder of Gonville and Caius College, and Master of the College, 1559-1573. With a Memoir of his Life by Dr. John Venn. Edited, at the request of the Governing Body of the College and of the President and Fellows of the Royal College of Physicians, by E. S. Roberts, Master. In commemoration of the four hundredth anniversary of the birth of John Caius in 1910. Pp. xii+828. (Cambridge University Press, 1912.) Price 18s. net.

OWING to various circumstances, this important volume has not received earlier notice; but we may hope that in the case of a work of permanent value there may be some advantage in a later notice which shall recall attention to a standard volume which otherwise, in the flood of books from the press, might be temporarily forgotten. Its contents and the occasion of its appearance are sufficiently recorded in the title, and the names of its editors—including some not titular editors who collaborated in its production—are a strong guarantee of its faithfulness: names such as the late Master of Caius, Dr. Venn, the late Dr. Payne—a learned coadjutor who was lost to the world of letters and of medicine during its preparation—and Dr. Norman Moore.

John Caius, Second Master of Gonville and Caius College and sixteenth Master of the foundation, was born at Norwich, October 6, 1510. He was a personal friend of Gresham, and Martin's Bank has been the College bank in London ever since Gresham's day. Caius was in close friendship with Vesalius, and graduated at Padua. He seems even then to have been a man of some affluence, as, besides his leisurely education, he travelled widely and formed friendships with many other great men of science of that period, such as Gesner, for whom he wrote his "History of Englishe Dogges."

If it cannot be pretended that Caius was a man of any great intellectual originality, but he seems to have been intensely interested in scientific pursuits, and was equipped with wide, if rather old-fashioned, learning. His treatise on the Sweating Fever, if not profound, is the first original authority on this epidemic. But his claim to remembrance rests rather on his remarkable

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character and achievements than on his literary works. Not a genial man, "sad and stern," Dr. Venn calls him, and of weak bodily health, he seems to have lived much of an inner life, dwelling in ideas of dignified, studious, and austere foundations, such as colleges, whether academic or of crafts and mysteries; happily for us, both in Cambridge and in the College of Physicians he pursued these ideas with a devotion undaunted by temporary and worldly animosities and disappointments. His admiration of public service and of learning is seen in his honour to the memory of Linacre. Loving symbolism as he did, he was attached to the ancient forms of religion, and partly for this attachment, partly for his rigorous rule, he was treated in his Cambridge college with what nowadays we should call savage brutality, and in any age base ingratitude. Still, he never blenched, never for the raging of wicked men did his ideals fade or fall. Even to the last, when driven by turbulent youths from the College which he had re-founded, and almost on his death-bed, his eyes fixed with a noble faith on the future, he continued to provide his college with additional endowments and statutes. Unhappily, although if he could see his college now his spirit would rejoice, yet for centuries after his death his wise rules were neglected, and the provisions he had especially made for medical studies set aside and perverted. But Caius has long come to his own; the household of his famous College, and we who reap what he sowed, are nurtured in perpetual thankfulness to the great idealist whose devotion and far-seeing wisdom, in spite of heavy discouragements, never lost his faith and his hope, but bountifully bestowed upon future generations the blessings so ill-requited by his own. C. A.

CERAMIC CHEMISTRY.

A Treatise on Quantitative Inorganic Analysis. Being Vol. i. of a Treatise on the Ceramic Industries. By Dr. J. W. Mellor. Pp. xxxi+778. (London: C. Griffin and Co., Ltd., 1913.) Price 30s. net.

THE ceramic chemist has waited many years for a thorough and comprehensive treatise on the quantitative analysis of the materials with which he has had to deal, and here at last is what he had so long and so urgently needed. Dr. Mellor states that "this book is to be considered as the first volume of a treatise on the ceramic industries," but the range of mineral substances used by the modern potter is so wide that Dr. Mellor has found it necessary to cover practically the whole field of inorganic analysis. At the same time, particular attention is given to the analyses usually required in the pottery industry; and here we may

mention specially the chapter on the rational analysis of clays as not only thoroughly sound in itself, but as typical of the comprehensive and judicious treatment of the subject which is so characteristic of this author's work.

The book is a very full compendium of special methods, with careful references to their original publication and an impartial summing-up of the advantages and disadvantages of each, generally followed by a minute description of the method used by the author himself and the data and working out of an actual analysis or estimation. It need scarcely be pointed out that all this is of the very greatest value to the student and to the industrial analyst; and, in fact, the personal note throughout the book is one of its most noticeable and valuable features. Innumerable suggestions and instructions in connection with analytical difficulties here given for the first time are due to the personal outlook of the author and to the methods of work adopted with his own students.

In the same spirit the book is fully and admirably illustrated by reproductions of photographs of the apparatus actually in use in Dr. Mellor's laboratory, and descriptions of the construction, principles, and use of the various appliances are unusually detailed, complete, and illuminating. Special attention may be directed to the chapters on filtration and washing, on sampling, on abbreviated analyses and analytical errors, and to the description of electrolytic methods for the determination of the metals.

Part iii. on the analysis of glasses, &c., is particularly valuable, dealing as it does with a very difficult branch of analytical work and in a most lucid and helpful manner. The tables given in the appendix, some of which have been compiled especially for this work, add greatly to the usefulness of the book. We look forward to the publication of the second volume, which, if it carries out the promise of this first, will complete a very notable and important work on the ceramic industries.

DAIRYING.

- (1) *British and Colonial Dairying: For School, Farm, and Factory.* By G. S. Thomson. Pp. xi + 464. (London: Crosby Lockwood and Son, 1913.) Price 5s.
- (2) *Farm and Creamery Butter-making and Student's Reference Book.* By C. W. Walker-Tisdale and T. R. Robinson. Pp. 194. (London: John North, 1913.) Price 3s. 6d. net.

(1) **T**HE aim of the author, one learns from the preface, is "to put into plain, practical language information that will assist to

correct errors which are preventing development of important phases of the dairying industry." A careful perusal of the book leads to a favourable verdict upon the results of his labours, but the feeling that some of the subject-matter might have been omitted without much loss must be recorded.

One finds that the term dairying has been used in its most extended meaning, and has been made to cover a very large number of subjects, *e.g.*, breeds of cattle, dairy education, bacteriology, milk record keeping, poultry raising, analysis of dairy products, etc. All these matters and many more certainly enter in some way or other into dairying, and we are glad to have information about them, but they tend to make the volume more encyclopædic than is desirable. On reading these pages one feels, however, that they are written by a man who has first-hand knowledge of what he writes about, and the frequent personal recommendations give an added value to the book.

The scope of the volume has not been limited even to the British Empire, as the title suggests, for dairying in Denmark, Sweden, and Siberia are treated of, as well as the making of cheese in France. The dairying laws of America, Holland, Switzerland, Denmark find place alongside those of Great Britain, and will be most useful for reference. The chapters dealing with diseases of cattle and with bacteriology are written in clear and not too technical language. The section on the analysis of dairy products is confined to an account of the composition of the various substances discussed. The volume is extremely well printed and produced.

(2) The new edition of this well-known handbook is the third revision, and there has been added a chapter dealing with the utilisation of dairy by-products. This addition is very welcome for the profitable disposal of separated milk and buttermilk is often a serious problem to the dairyman. Where the requisite attention can be given to poultry, experience shows that the use of separated milk for fattening purposes is one of the best means of disposing of it. Alternative suggestions are also made in this chapter.

The section dealing with the construction of the dairy is very sound, and is particularly to be recommended where a new building is contemplated; an ornamental exterior and a lavish use of white tiles for the internal walls do not necessarily provide the degree of cleanliness and ventilation that is necessary where such a delicate article as butter is being made. High praise can also be given to the sections on the production of cream, cream percentages for churning, cream ripening, and to the careful detailing of the various operations of butter-making. The novice